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# Education on Food, Fisheries and Agriculture

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# Education on Food, Fisheries and Agriculture

by Molly Anderson

Education about food, fisheries, and agriculture in Maine is provided through a wide variety of venues. Although we may think of education primarily as a service provided to K-12 students, young people, and adults by schools, colleges, and universities, education about food and agriculture comes to everyone through multiple sources: friends and family; participation in community activities; shopping for food at supermarkets, farm stands, or farmers' markets; advertising that assails us everywhere; and media.

The need for widespread education about a good diet, a healthy lifestyle, and how eating local foods supports Maine's economy has been recognized by many, including a working group that drafted legislation for a Maine food policy and food policy council in 2006. This revised policy expanded many of the concepts in a 1984 Legislative Resolve, which had established a food policy for Maine. The Maine Department of Education in its "Vision Statements for Maine Agricultural Education" also clearly recognized the need for agricultural literacy, professional development for K-12 teachers and career support in agriculture ([maine.gov/education/aged/vision.html](http://maine.gov/education/aged/vision.html)).

The desire to articulate goals for agricultural education at K-12 may have been in reaction to its de-emphasis over the last few decades. Most Maine children came from farming or fishing backgrounds as recently as the middle of the 20th century and all girls took "home economics" in high school until the last decades of the 20th century. The decline of farm numbers and growth of towns and cities, however, meant that many children had little or no direct

exposure to agriculture or fishing by the end of the century. As women moved into the paid workforce, the perceived need to train them to be "homemakers" and to teach them cooking skills declined.

A positive development in K-12 education related to agricultural literacy is the emergence of several good programs to enhance education about food and agriculture in public and private schools. Farm-to-school (F2S) programs have taken off rapidly in Maine, thanks to efforts of many champions. F2S benefits from the support of Focus on Agriculture in Rural Maine Schools (FARMS) and the National Farm to School Network, with its state and regional coordinators. F2S programs include a Maine Harvest Lunch, which has expanded since more than 200 schools participated in the first event in 2007. The Maine Department of Agriculture and Department of Education provide support to F2S groups, and a statewide email listserv and networking meetings have been organized by Western Mountains Alliance, Healthy Acadia, and the Eat Local Foods Coalition.

Maine is one of 10 states chosen to launch the new FoodCorps Program, which will support young volunteers to build and tend school gardens, facilitate sourcing and purchasing of local produce for local schools, and conduct hands-on education. Volunteers will be sponsored by community organizations and Cooperative Extension.

Another exciting new initiative for youth is the proposed environmental and agricultural magnet high school at Good Will-Hinckley for students who need an alternative learning environment, partnering with Kennebec Valley Community College so that students can earn credit toward an associate's degree.

Many of Maine's colleges and universities offer educational options in agriculture and food-related topics (Table 1). The largest of these is the state land-grant university, the University of Maine, with undergraduate and graduate (M.S. and Ph.D.) degrees ranging from food science and human nutrition to marine bio-resources. In addition, master's degrees in human ecology, hospitality and tourism management, and hospitality management are offered by College of the Atlantic, Husson University, and Thomas College, respectively. Undergraduate four-year degrees are also offered by these institutions. The University of New

TABLE 1: Food System-related Degrees in Maine Colleges and Universities

School	Program Area (degree)
University of Maine, Orono	Animal and Veterinary Science (BS); Animal Science (MS) Botany and Plant Pathology (MS); Plant, Soil and Environmental Studies (MS); Plant Science (PhD) Environmental Horticulture (certificate: environmental horticulture; BS: concentrations—horticultural business, landscape design, sustainable horticulture; MS: horticulture) Food Science and Human Nutrition (BS: concentrations—food science, food science and human nutrition, human nutrition and dietetics, food management; MS: food science and human nutrition; PhD: food and nutrition sciences) Marine Bio-Resources (MS, PhD) (interdisciplinary program: Animal and Veterinary Sciences, School of Marine Sciences, Food Science and Human Nutrition, for training in aquaculture and marine-related industries) Marine Sciences (BS: aquaculture concentration) Sustainable Agriculture (BS, MS) (interdisciplinary program: Plant, Soil and Environmental Sciences; Biological Sciences; School of Economics)
University of Maine-Augusta	Veterinary Technology (AS) (Bangor campus only)
College of the Atlantic, Bar Harbor	Human Ecology (BA, MPhil)
Husson University, Bangor	Hospitality and Tourism Management (concentration) (BS, MBA)
Thomas College, Waterville	Hospitality Management (BS, MBA)
Unity College, Unity	Agriculture, Food and Sustainability (to be changed to: Sustainable Food Systems, beginning fall 2012) (BS) Landscape Horticulture (AS)
University of New England, Biddeford	Aquaculture and Aquarium Science (BS)
Central Maine Community College (CMCC), Auburn	Culinary Arts (1-year certificate program)
Eastern Maine Community College (EMCC), Bangor	Food Service Specialist (1-year certificate program) Culinary Arts (AAS) Restaurant and Food Management (AAS)
Southern Maine Community College (SMCC), South Portland	Culinary Arts (AAS) Dietetic Technology (AS) Horticulture (AAS) Lodging and Restaurant Management (AAS)
Washington County Community College (WCCC), Calais	Culinary and Baking (1-year certificate program)
York County Community College, Wells	Culinary Arts (AAS)

Degree abbreviations: AS = Associate in Science; AAS = Associate in Applied Science; BS = Bachelor of Science; BA = Bachelor of Arts;  
MS = Master of Science; MPhil = Master of Philosophy; MBA = Master of Business Administration; PhD = Doctor of Philosophy.

## Education for Future Food Systems at College of the Atlantic

by Molly Anderson

I teach and coordinate a program in sustainable food systems at College of the Atlantic (COA) in Bar Harbor, Maine. I came to COA because of the unique profile of its educational system: classes are highly interdisciplinary, glocal (moving from local to global perspectives and back again), and focused on the integration of theory and practice. Students construct their own curricula in human ecology, or the interaction of humans with our natural environment and how social relations affect that interaction. They are passionately interested in sustainability: what it means, how to create more sustainable lives and businesses, and how to overcome barriers that prevent people from living in harmony with each other and our environment today. The student body is unusually diverse for Maine: about 13 percent are international students. These international students provide invaluable perspectives on the realities of life in other parts of the world, and the needs for future food systems.

The sustainable food systems program builds on established classes and partnerships to expand food-related education beyond food production on COA's two organic farms to preparing students for professions across the food system spectrum: from food production to waste disposal, analysis to advocacy, and science to arts and humanities. A sustainable business program initiated in 2009 complements food-system courses, internships, and other field experiences. The program teaches students how to become social entrepreneurs who can use socially and

environmentally responsible strategies to create positive changes in the world, while achieving financial success. COA's foodservices is co-directed by a COA graduate and offers affordable, delicious meals with preferential purchasing from producers of local, organic fruits and vegetables, antibiotic- and hormone-free, grass-fed beef and lamb, and fair-trade coffee. Just as students learn by doing in the classroom, farm, and field, the entire campus community learns by eating in the campus dining room.

After 25 years spent in research and education directed to reforming food systems, I believe that the kinds of skills and knowledge imparted in programs such as the ones at COA are vital for our future. The U.S. needs to learn how to grow food without damaging water quality and eroding soil; provision ourselves without relying on petroleum; close the nutrient loop so that all "waste" becomes a resource; multiply the number of farmers; create rural economies that rely once more on strong food businesses for jobs and wealth; and revive the culture of agriculture so that multiple generations can live in rural areas with ample intellectual and social stimulation. To have healthy lives in the state of the future, every person needs to become food literate: understanding the contributions of agriculture to environmental quality and community vitality; understanding how to grow food, prepare it, and eat to be healthy; and learning how to create and support policies that will lead to a state where every person eats well.

England offers a B.S. in aquaculture and aquarium science, and Unity College offers a B.S. in agriculture, food and sustainability. Associate's degrees (two-year) in agricultural or food topics are offered by the University of Maine-Augusta, Unity College, Eastern Maine Community College, Southern Maine Community College, Washington County Community College, and York County Community College. Additionally, one-year certificate programs are offered by two of the community colleges. The primary emphases of these programs are on agricultural production, animal and veterinary science, aquaculture, culinary arts and restaurant management.

Compared with other states, the number and diversity of agricultural, fisheries, and food-related degree programs is high, and Maine is one of the few states that has several undergraduate and graduate degree programs in marine science in addition to agricultural sciences. In keeping with the state's reliance on income from tourism, hospitality management is well represented in degree options. Sustainability in food systems (the diversity of activities from production of inputs to food consumption and waste disposal) is addressed in the University of Maine's B.S. and M.S. in sustainable agriculture; Unity College's B.S. in agriculture, food and sustainability; and College of the

## From Farm to Fork: The Maine Food System and University of Maine Cooperative Extension

By John Rebar

Maine's food system is changing—much as it is across the region and country. There is a growing demand for locally produced food. Citizens want to support local farmers, fishermen and the economy. They also want to grow their own food. However, who supports the farmers, fishermen, food processors, and home gardeners to produce high-quality food that meets this demand? The University of Maine (UMaine) Cooperative Extension is deeply rooted in many aspects of the food system and uses education as the primary tool to influence the production, processing, and eating of high-quality and nutritious meals. It has used applied research and outreach to help Maine citizens for more than 97 years.

UMaine Extension is helping Maine agriculture and aquaculture to be competitive and helping home gardeners and others produce their own food. Extension faculty and staff provide expertise in a wide array of areas that can affect Mainers' lives and influence the food we grow, process and eat. The food system is complex, with many components. UMaine Extension is committed to supporting sustainable agriculture and aquaculture that protects human, land, water, and air resources and generates a profit for farm families. From infant nutrition to seniors' intake of fruits and vegetables, Extension is helping Maine people make informed decisions about food. Extension also works with limited-income families to teach the value of a nutritionally sound diet that stretches the food dollar. From farm to fork, UMaine Extension is a key partner in Maine's food system.

**Technical Expertise:** Faculty and staff provide research-based information to farmers on the production of crops and livestock in all the major commodity areas. Specialists in potatoes, dairy, wild blueberries, ornamental horticulture, vegetables, tree fruits, poultry, livestock, and more are all relied upon for information on new varieties, new production techniques, pre-emergent through post-harvest management, harvesting, storage, pricing, and marketing. Extension also provides technical support to homeowners, gardeners, and others on how to maximize production, minimize costs, and protect the environment.

**Pest Management:** All agricultural production is at risk from pests. UMaine Extension promotes integrated pest management (IPM), which means the scientific use of pest-control measures. IPM has reduced the amount of pesticides used in Maine while saving crops and livestock, thereby reducing costs by millions of dollars and protecting the environment. Organic farming and gardening is supported through production and pest-management education. Education in this area has expanded to schools, hospitals, and public buildings to reduce the risks associated with pesticide use.

**Food Safety:** UMaine Extension provides educational support to farmers, food processors, and consumers on how to protect the food supply and feed our families safely. Food can be contaminated at every phase of production and processing. Through proper sanitation and management, foodborne illnesses can be prevented and the credibility of the food system maintained.

**Food Security:** Maine has far too many people who do not have enough food to eat. UMaine Extension is helping to feed hungry people through education. For example, Harvest for Hunger teaches home gardeners how to produce food and asks that participants contribute some of their harvest to those who don't have access to fresh produce. In 2010, more than 200,000 pounds of fresh produce were donated to food pantries, shelters, and other locations that serve those in need.

**Farm to School:** Youth need to understand where their food comes from. Through collaborative partnerships, UMaine Extension is working with many groups to bring locally grown food into schools and help students understand that food doesn't just come from a large grocery store.

**Preserving the Harvest:** Whether canning, freezing, or drying, food preservation is an area of growing interest in Maine. UMaine Extension is the primary in-state resource for research-based recommendations on how to preserve the harvest to retain high quality and be safe. Food preservation workshops are held regularly across the state.

Atlantic's unique B.A. and M.Phil. in human ecology (see sidebar).

Although they do not have degree programs in agriculture or food-related topics, several of Maine's private colleges have hosted events, started organic gardens, and offered courses in food and sustainability. For example, Bowdoin College has an organic garden and organizes a "Meet What You Eat" initiative through its environmental studies program. Bates College has achieved recognition for its dining service that purchases local and organic produce and grass-fed beef. Bates is a member of the Green Restaurant Association and diverts more than half of its solid waste from the local landfill through a comprehensive management system.

Maine's oldest organization devoted to public (non-degree) education and outreach about food is the University of Maine (UMaine) Cooperative Extension. UMaine Extension provides information and technical expertise to food producers, processors, and the general public in areas ranging from commodity crop production, aquaculture, and pest management to food preserving, food safety, and food security (see sidebar).

It is perhaps in its stellar nongovernmental organizations and numerous educational farms and their educational initiatives related to food production and healthy eating that Maine stands out the most from other states. The Maine Organic Farmers and Gardeners Association (MOFGA) is a leading light, one of the first such organizations and largely responsible for the revitalization of small farming in Maine. In addition to an extensive array of year-round workshops in agricultural topics, it organizes the annual Common Ground Country Fair that brings together Maine's agricultural community. MOFGA also offers a journeyman program that helps wannabe farmers bridge the gap between apprenticeships and independent farming.

Many other organizations that address food, agriculture and aspects of sustainability have sprouted up. The Newforest Institute in Brooks teaches permaculture techniques and design of facilities for sustainable living. Several other organizations focus on food access, food justice, and building a local food economy (e.g., Food for Maine's Future, Cultivating Community, Healthy Acadia, and the Real Food Institute of Midcoast Maine)

or improving conditions for the lowest-paid workers in the food system (e.g., Mano a Mano in Milbridge). To provide better education and technical support in addressing issues related to fisheries, Penobscot East and Cobscook Bay Resource Center offer talks, exhibits, conferences and other events. In addition, UMaine Cooperative Extension offers many workshops, often in conjunction with other groups or organizations, to bring current research findings to the public.

Maine's educational farms include Aldermere Farm (Maine Coast Heritage Foundation); the Page Farm and Home Museum (University of Maine, Orono); Chewonki Foundation; the Morris Farm Trust; Washburn-Norlands Living History Center; and Wolfe's Neck Farm. Each of these farms offers programming—ranging from hosting visitors to conferences and summer camps—to educate children, youth, or their adjacent communities about agriculture and food. The Eat Local Foods Coalition was started almost 10 years ago to network and support organizations working on food and farming issues and to create a stronger "voice" for these concerns in Maine.

Maine has diverse opportunities for people interested in learning more about the food system, from K-12 programs to doctoral degrees to public workshops for farmers. The state is well-positioned to support burgeoning interest in local foods and to enhance agriculture and fisheries' positive impacts on the state economy. 🐟



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and on the faculty of Tufts University where she initiated the Agriculture, Food and Environment graduate degree program.